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Original Articles.

THE MEDICAL ASPECT OF DENTAL IRRITATION.

By William A. Lurie, M.D., New Orleans, La.

With the many revolutions in theory and practice in the science of medicine, has dentistry kept pace? This is a question which should present itself for consideration, as the very first concept of the subject.

The advancement in medicine has been marked by numerous leaps and bounds, and conditions which seemed impossible or unconquerable yesterday may be simple and of easy explanation today. All these advancements have taken place almost simultaneously in every branch of medicine. They can be accounted for by the close association which exists in all branches of medicine. Among the notable advances may be mentioned those of the laboratory. It has kept pace with medicine, and at times perhaps been a bit ahead of it. It may be that as an entity, not any of the branches of medicine would have been capable of so great an advance without the assistance of the others.

This has not been true of the practice of dentistry. It has been deemed sacrilegious for one without a dental degree, or who has not had years of dental experience, even to comment on mouth conditions, particularly where reference to the teeth, their function, their use, their care or their repair was made. Medicine therefore busied itself elsewhere and forsook the mouth as a field for its care. It has been left to the dental profession, and what has been the result?

The laboratory which has kept pace with dentistry has been the dental laboratory,—a mechanical institution. There has been no attempt made towards scientific advance. The effect on dentistry of the association with a mechanical institution has become apparent in the advancements made by that profession. They have in the main been mostly mechanical. At the expense of human life and happiness, many new and beautiful artificial substitutes for teeth and compounds for fillings have been developed. In numbers of instances experience has proved that nature will not tolerate what may seem perfect in theory or in mechanical practice.

Dentistry is not to blame for the condition. The physician of the past has not taken it upon himself to instruct his patient relative to mouth conditions, no more than he has preached the laws of sanitation. The dentist, however, has long taught the care of the mouth, but from a standpoint of mechanical usefulness. Statistics reveal the fact that only a small proportion of people visit the dentist, during an ordinary life-time, when compared with the number who visit the physician. Here again the medical profession has fallen behind in its public duty. The greatest benefit derived from the teachings in hygiene comes from a personal contact of teacher and pupil. Still the greatest volume of people never visit a dentist except in cases of necessity. Through the neglect of the medical profession, the vast majority of people have never had the advantage of authoritative teachings relative to mouth conditions. Those who do visit the dentist for some affection of the teeth or jaws are in no frame of mind either to listen or to pay for a lecture on how to prevent a condition which they already have or may never have again. In terse words, the public does not seem inclined to pay to learn "how to prevent."

The lay press has stepped into the breach and by a series of write-ups, some rational and practicable, but a vast majority far overdrawn, they have worked the public mind to the point where it has forced dentistry beyond itself. The immediate effect of this movement is now being felt in every community. Whenever and wherever a person has an ache or a pain, he is reminded that it may come from his teeth, and post-haste a visit to a dentist discloses a possible source of irritation or infection.

Does the removal, or the cure of the infection or irritation about the patient's teeth, cure the patient? Not always. Why? The question of why a patient who has had an infected tooth or some dental irritation relieved and does not get well is one for medicine to solve, and not for dentistry. There has been much written on the subject, and it is of greater volume than can be undertaken here.

Where the interest in a tooth is only mechanical on the one hand, as it is in dentistry, and physiological, as relates to medicine, on the other, there is of necessity a diversity of opinion. While a tooth is a necessity and is often needed as a support for some denture, it does not follow that a patient must retain such a tooth, and be the host of a constant irritant or infection.

In this connection one often hears the criticism of the medical profession, by the dental, in that many teeth are extracted which could be saved. Is such criticism on the part of the dental profession just criticism? Does the dentist know the seriousness of the patient's harboring an infection, while he is attempting to treat and save the tooth? He does not.

The recent studies in blood pictures have clearly shown the difference in cases where there is found irritation without infection, infection without a vast incident of irritation or both concomitant. The studies of cases of mouth infection and irritation carried on along the same lines, show that the same relation holds true with relation to conditions of the oral cavity as elsewhere in the body.

In the greatest number of instances, dentists who have not had the experience in this direction but who are expert in the mechanical side of their profession, lose sight of these facts. Perhaps it has never been brought to their attention, but be that as it may, the medical profession must stand the accusation of being remiss. Medicine has made its mistakes in its relation to dentistry, just as dentistry many times refuses to recognize its relation to general medicine.

From the medical aspect of the mouth, relative to infections and irritation, the necessity of a proper masticating apparatus is an essential factor, and the one which links medicine and dentistry. The dentist is interested in maintaining a mechanical means for food mastication, while the physician directs his attention to mastication to see that it is properly performed for the purpose of beginning digestion.

The greatest effect of mouth conditions is no doubt primarily felt in the alteration of digestion, through the inefficient mechanical construction of the jaws, and second through enzyme activity. Much has been written on the effects of improper digestion. Theories and counter theories have been advanced, but let it suffice to mention here that the condition of the mouth, through irritation or infection, is often reflected in the digestive ability of the ferments introduced into foods while in the mouth. It is a fact that an irritation may cause an increase in salivary secretion to such an extent that when food is introduced there is no response to the additional stimulation. Such lack of digestion is recognized as due to a decrease of ferment concentration. An infection may be the underlying factor in the causing of an acid reaction to the mouth sufficient to inhibit the activity of the saliva when it is poured into the mouth.

The effect of an oral infection or irritation is not necessarily only a local one, or on digestion entirely. Toxines, as well as bacteria from an infected site in the mouth, are carried everywhere by the blood stream. The numbers of changes in glandular tissue throughout the body resultant therefrom are the subjects of study by many today. The effect of the production of energy under the stress of such irritation or infection is being considered in the study of the function of the ductless glands.

Is it the rôle of the physician or the dentist to care for such conditions?

Where the question arises, and it often does, of the sacrifice of a tooth, though it may appear of great importance, dentally, the condition of the patient relative to resistance, vitality and ability at regeneration is of the greatest importance and should be given prime consideration. The dental treatment necessary to have the patient retain such a tooth, without irritation or infection is of doubtful value and unknown duration. Often after the most skillful treatment the patient harbors an irritant or an infected member. The medical view of the case should govern the decision as to the advisability of saving the tooth.

Bloodgood makes mention of the fact that a greater percentage of mouth conditions assume a malignancy than any other group elsewhere in the digestive tract. Perhaps the work of Yamagihwa and Ischicawa on cancer may lend some light on this subject. A constant irritation, continuous infection and a washing away of the products of destruction, thereby preventing the building of a body resistance or perhaps preventing the formation of inhibiting bodies, either generally or locally.

Where the interest in the mouth of a patient is centered on the teeth, many conditions of general character, whose symptoms may be reflected in the mouth, may be looked upon as being rather the result of a local condition than a general one. The increasing number of syphilitic conditions which find expression in the mouth and are looked on by many of the dental profession as purely local lesions are not inconsequential in number.

Recent writings call attention to the increasing numbers of oral cancers, the result of gummatous degeneration. In a contemplation of the increase of the malignant degeneration of these conditions, the irritation of tobacco smoking is also strongly mentioned. The increase of this habit, plus the added numbers of irritants, the results of some of the new ideas in dental replacements and abutments for bridges should be mentioned as additional possible causative factors. Perhaps these, too, have their influence on the development of malignancy.

It will never be known what percentage of gastric ulcers have gone on to malignancy because of some faulty condition of the mouth. In many of these cases the mechanical and dental aspect of the mouth is apparently good, or perfect. Too often only a superficial examination of the mouth is made.

From such examinations, without intelligent roentgenograms and their proper interpretation one may never hope to determine a local condition which is the result of a general condition, or a local condition responsible for a general condition. The number of devitalized teeth which show no external evidence of trouble, or the healed areas where teeth have been extracted, which might still remain infected, is given little consideration. The picturing of the apical areas of such teeth or of the jaw bone where extractions have taken place is a matter of more recent study, and to my knowledge there are no accurate data on these points to date. However, from my experience I believe that too often changes of great magnitude are looked for before anything radical in the way of tooth extraction or alveolar resection is advised. An area may be badly infected and the bone changes pictured in the roentgenogram may be but slight.

An old stagnant diseased area may appear to be an innocent process in a roentgenogram, or the several tests may not indicate any seriousness associated with the local condition, but there is no way of determining when such an area may undergo a rapid absorption, with a resultant intoxication. In the event of a superficial lesion elsewhere in the body, such areas are prone to become secondarily infected. The symptoms and symptom complex referable to foci of infection are various and numerous, and any one or any group of such symptoms may result from just such an area.

As a field for study, the mouth of a growing child will yield a greater number of unexplained conditions than can be found in the jaws at almost any other stage of life.

It has been several years since the writer was impressed with the association of the acute infectious diseases of childhood and dentition.

All medical writers have pointed to the comparative immunity of the infant under six months, to these infections. It seems that the greatest number of so-called diseases of childhood began with the time of the beginning of deciduous dentition and ends about the time of the total loss of the baby molars. Comparative statistics will reveal that the proportion of children between two and four years of age, who suffer from acute infections is less than those between four and eight years. When a child reaches the age of two years, it has, or should have acquired all of its set of first teeth. There is then less local irritation and infection than in the life period just passed, or after the age of four, when second dentition often begins. With the erupting of the second set of teeth, there is always more or less irritation or infection about the teeth, which continues until dentition is completed.

The superficial infections and irritations incident to dentition lowers the resistance of the child, at least temporarily. The various forms of streptococci which inhabit the mouth normally may assume a transmuted form and under the proper conditions assume a predominant proportion in the case, and appear as the exciting cause of the infection. The work of Rosenow has been monumental in this direction.

Infections about the mouth are more common than any other conditions about the body. From an almost insignificant marginal infection about the gum of the molar teeth, there may develop a painless and symptomless extension into the deeper faciae, as the temporal, masseter or platysmal. These infections may extend to the development of a deep-seated phlegmon, or present but more minor symptoms. Many times teeth are unnecessarily sacrificed for such conditions, when a little attention to the local condition in the mouth and the care of the infected fascia either surgically or otherwise as indicated would have cleared up the case. At times such infections produce a great amount of local swelling, but there is very little pus formation.

It is the purpose of this paper to stimulate the medical profession, if possible, to the realization that there is another aspect to the mouth than that of dentistry alone. That mouth conditions deserve the attention of the medical man as well as that of the dentist. On the other hand, dentistry, as such, does not cover all diseases of the mouth and jaws, and such as result therefrom.

Mouth conditions have a medical aspect just as certainly as does any other part of the human anatomy, and as such the mouth is a field worthy of the special practice of the physician. As such, the specialty of stomatology need not interfere with that of dentistry any more than that of nose and throat, or any other combinations that one may care to mention.

It is my desire that there shall be nothing in this paper that shall be construed as antagonistic to dentistry. It is intended, rather, that both professions see the shortcomings in their branches, and a beneficial progressive advance result.

This paper is written with the thought and hope that conditions due to lowered defense will be considered, as Dr. John J. McNulty states, "from the physiologist's point of view; and that the basic therapy is physiologic therapy, so far as physiologic therapy stands serviceably revealed." With Dr. McNulty we believe, "These definite morbid radicals are expressions of lowered resistance due to disturbances of the normal functioning of the interrelated and interdependent autonomic mechanism— the internal secretions—enzymes cycle. And that the basic therapy is the employment of physiologically associated gland substances, with their internal secretions and enzymes, activating influences, to aid nature in the law she is ever trying to express, that is, inherent repair.

"We are not," Dr. McNulty writes, "interested so much in the question where primary infection occurs, as the fact that infection can occur anywhere in the organism. The ideal state of the human organism is a state of perfect defense where infection cannot occur, and our efforts should be to aid nature reëstablish and maintain this normal or unassailable condition."

ILEOSTOMY FOR POSTOPERATIVE OBSTRUCTION FOLLOWING APPENDECTOMY.*

By Edward P. Richardson, M.D., F.A.C.S., Boston.

Enterostomy is justly regarded in cases of acute intestinal obstruction coming on spontaneously, or months or years following laparotomy, as an evil often necessitated by the nature of the obstruction or by the patient's condition at the time of the operation. It may be a life-saving measure; nevertheless, the ideal procedure is to discover and deal with the point of obstruction.

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* Read at Southern Surgical Association, December, 1919.

In considering the treatment of intestinal obstruction, however, a distinction should be made between obstruction occurring spontaneously, or late after operation, and that occurring early after operation, during the period of convalescence, the type described by Deaver as post-inflammatory obstruction. Although commonly grouped together in statistics, they differ both in pathology and prognosis. In the first class, consisting of spontaneous and late post-operative obstruction, we are dealing with wide variety of pathological lesions, including firm organized bands and adhesions. In the second class, cases recently operated upon, the pathology is less uncertain. If mechanical obtruction exists, in the majority of cases it is caused by recent unorganized, or partly organized adhesions, which present a greater hope of yielding or absorbing. Such adhesions represent temporary rather than permanent causes of obstruction. If we further limit this second class of cases to its largest group, obstructions occurring during convalescence from appendicitis, the probable pathological cause is even clearer. Here in all likelihood the cause of obstruction is adhesions of the lower ileum in the neighborhood of the original wound, right iliac fossa or pelvis, with local paralysis of a segment of bowel from sepsis as a possible contributing factor. We can further say that strangulation of a loop of bowel is unlikely.

With the clearer estimation which is possible as to the character of the obstruction, and its less permanent nature, the place of enterostomy in treatment is distinctly different in obstruction during convalescence from its place in the treatment of obstruction in general. In this connection, since more radical measures are frequently advocated for this condition, particularly ileocolostomy, it has seemed worth while to record the result in seven cases of obstruction occurring during convalescence from appendicitis, representing my total experience to date, including five cases in which ileostomy was done.

While symptoms of ileus occurring shortly after operation for gangrene of the appendix with abscess or diffuse peritonitis are common, clear-cut mechanical obstruction is infrequent. Vomiting, distention, and obstipation, developing immediately after operation, characterized by absent or greatly diminished peristalsis and gas pains, are principally the result of peritoneal infection, and represent conservative efforts on the part of the individual to limit the sepsis. In such cases, treatment well directed toward aiding and maintaining the patient, Fowler position, proctoclysis with tap water or glucose solution, hypodermoclysis, gastric lavage, morphia, hot packs of the abdomen, enemata, pituitrin, etc., affords relief in the majority of cases. The outcome depends chiefly on the ability of the patient to overcome the infection; if this occurs, the bowel usually takes on its activity. In considering operation in relation to these cases, I have felt that there was little to be gained by it unless there had been evidence of active peristalsis.

In a few cases of paralytic distention, although the patient appears to overcome the peritoneal infection within the first three or four days, and peristalsis becomes active, with gurgling on auscultation, and definite gas pains, yet distention and vomiting persist. Enemata occasionally give rather unsatisfactory results; occasionally obstruction appears complete. In such a patient, who is rapidly losing ground in spite of appropriate palliative measures, surgical interference comes in question. These cases cannot be considered as pure mechanical obstruction, nevertheless there is a definite mechanical factor in addition to the sepsis (Cases 5 and 7).

In other cases the distention and discomfort following operation subsides, and the patient is apparently making a satisfactory convalescence. Toward the end of the first or during the second week, pain suddenly develops, followed by vomiting, distention, and evidence of increased peristalsis. Enemata become effectual. Acute mechanical obstruction has obviously occurred (Cases 3, 4, 6).

In the presence series, except in one instance, Case 1, I have operated only when obstruction persisted in spite of active peristalsis, as shown by well-marked cramp-like pain, gurgling on auscultation, or visible peristalsis. Such obstruction has occurred in under 2% of my own appendectomies requiring drainage, and in none of the undrained. Since, as we have seen, the probable cause of obstruction is fixation by recent adhesions, there is a natural tendency to persist for a while in palliative measures, in the hope that the obstruction will be overcome. The decision as to which cases will free themselves spontaneously, as well as when the proper time has come to interfere, is a difficult one. I feel very strongly that the conservative thing is to operate early. It is not claimed that the cases here presented would necessarily have died of obstruction, if not operated on. It is far better to operate occasionally unnecessarily, than to postpone operation until the later stages of obstruction have developed.

If the operation is undertaken, we have naturally greater latitude after clean appendectomies. In suppurative cases a fresh incision under local anesthesia internal to the original one is advisable. If bloody serum is found on opening the peritoneum a search for a strangulated loop of bowel is naturally suggested. If not, we now have two possible courses, first to find and free the point of obstruction, or second to provide drainage of the bowel, either externally or by a short-circuiting operation. If we look for the obstruction and separate the adhesions forming it, raw fibrinous areas are left on the bowel which immediately re-adhere elsewhere, the bowel distention persists, septic material may be spread from the drainage tract, the bowel wall may be extremely friable from distention and oedema, and tear, and lastly the operation may be severe for a reduced patient. Obstruction may persist or recur, and we may have only exchanged one obstruction for another, particularly if a segment of the bowel is partially paralyzed from sepsis. The obstruction may be short-circuited by ileocolostomy without disturbing adhesions. But this also means a considerable operation. Drainage of the bowel may be provided more directly and with far less disturbance to the patient by ileostomy under local anesthesia. It has the obvious disadvantages of faecal discharge, fluid-loss, frequent skin irritation, and possible secondary operation for closure. The whole question is how often when done for obstruction by plastic adhesions, will an ileostomy first relieve the patient, then close spontanously and so serve not as a palliative but as a curative procedure.

Of the seven cases, in one case a caecostomy was done on the third day under local anesthesia in a man of 45 with paralytic distention following appendectomy for gangrenous appendicitis with general peritonitis. Death followed in twelve hours. In a second, a child of ten, recovery followed reduction of an ileo-ileal intussusception occurring on the fourth day after a clean appendectomy. In the remaining five cases ileostomy was done. Four were children of eight or nine years, and one a man of 21. Obstruction occurred on the sixth to tenth day. One child had previous enterostomy through the original incision on the eighth day by another surgeon with temporary relief. A second ileostomy was done on the tenth day.

The technique was similar in all cases, an incision through the inner border of the right rectus or median line, choice of a distended bowel loop which appeared lowest and therefore nearest to the point of obstruction. In two cases, visible peristalsis gave a clue to the proper point of incision. In four cases, the peritoneal cavity was free from adhesions except in the neighborhood of the original incision. Enterostomy was done in all cases with a flanged glass tube and a purse-string suture, with no attempt to make a valvular opening to aid closure. I should, of course, in the future use the technique suggested by J. W. Long[1] or by C. H. Mayo,[2] to favor closure by means of inversion of the bowel well around a catheter, and by bringing the catheter, if possible, through omentum interposed between the bowel and abdominal wall.

The after-course in all cases was similar; with the relief of the distention, the bowel moved spontaneously on the third to fifth day. This strongly suggests, that in the type of cases operated on, an obstruction by angulation of the ileum, as described by Cheever,[3] existed. Fixation of the bowel probably occurred with angulation proximally. Distention of the bowel then made a valvular obstruction, which became all the tighter the greater the distention and the more active the peristalsis. With distention relieved, the bowel contents carried by the lateral enterostomy opening by bearing upon the point of obstruction, tended, aided by the subsidence of the inflammatory process and absorption of plastic exudate and oedema, to stretch and free the adhesions forming it. It also suggests the chief measure to be taken to avoid the development of obstruction, in addition to the obvious one of early operation, avoidance of trauma, and care in placing drainage, is the avoidance of active catharsis during convalescence. This becomes imperative if symptoms suggest partial obstruction. If the bowel contents are driven against a point of adhesion, overdistention and valvular obstruction are all the more likely to occur. Should obstruction develop, it also suggests that measures tending to relax the bowel, rather than stimulate it and increase local overdistention, are more likely to result in relief of the obstruction. It is in this way through relaxation of the bowel that the occasional relief of obstruction by spinal anesthesia probably occurs.

The after history of the five cases has been similar. The enterostomies all closed spontaneously in from four to seven weeks, although some of them seemed extremely unfavorable in the beginning. Their behavior would make me extremely slow to close a lateral enterostomy by secondary operation, provided satisfactory movements were taking place by rectum. One case reports well, by letter, after eight years, two after about three years, and one after one year. One case, after two years, is well except for a recurrent sinus in the original appendectomy wound. The ileostomy has remained healed. Relief of the obstruction in these cases has apparently been permanent.

No general conclusion can be drawn from so few cases, particularly since so large a proportion occurred in children, in whom the prognosis as to life and closure of the fistula may be more favorable than in adults. My own cases merely suggest that in the consideration of the treatment of obstruction, a distinction should be made between obstruction occurring shortly after operation and obstruction occurring from spontaneous causes, or long enough after operation for adhesions to cicatrize. The place of enterostomy is distinctly different in these two classes of cases. In the first class, its place as an evil occasionally necessary is clear. In the second class, obstruction by recent adhesions, it may be both palliative and curative. Good results depend on operation being undertaken early, and it is far better to operate on an occasional case unnecessarily than to postpone operation until the later stages of obstruction have developed.

Case 1. Caecostomy; death. A man, aged 45. Operation at Henry Heywood Hospital, Gardner, Mass., May 9, 1910, on fourth day of disease. Appendix adherent to brim of pelvis, perforated at tip. Abdomen contained a large amount of thin, gray, foul-smelling fluid. Drainage by three cigarette wicks. Persistent vomiting, distention, obstipation following operation. May 12th, cocaine anesthesia, caecostomy. Death in 12 hours.

Case 2. Reduction of intussusception; recovery. J. R., male, aged 10, patient of Dr. Joslin, Milford, Mass. Operation April 8, 1913, by another surgeon. Appendectomy without drainage for catarrhal appendicitis. Convalescence at first satisfactory. Bowels moved well on third day. April 12th, abdominal pain and distention began with vomiting. April 15th, obstruction complete for two days, vomiting faeculent for 24 hours. No blood from rectum. Operation: ether; median incision; peritoneal cavity clean and free from adhesions; beneath first incision an ileo-ileal intussusception, five inches long. Intussusception reduced. Good recovery.

Case 3. Ileostomy; recovery. L. F., female, aged 8, patient of Dr. H. C. Williams. Appendectomy with drainage Oct. 23, 1911, by Dr. M. H. Richardson, on the third day of the disease for retrocaecal appendix lying in a small abscess cavity. Drainage. Convalescence at first satisfactory. On the seventh night, colicky abdominal pain, increasing through the eighth day, with vomiting. No results from enemata. On the ninth day, distention with visible peristalsis. Operation by Dr. E. P. Richardson, ether; median incision, ileostomy without exploring or separating adhesions. On the fifth day movements began by rectum. Discharged on 48th day, with fistula closed. Patient reports herself entirely well Nov. 24, 1919.

Case 4. Ileostomy; recovery. Massachusetts General Hospital Record No. 186876. A man, aged 21; sick three days with abdominal pain. Admitted with temperature 103°, pulse 112. Immediate operation, January 2, 1913. Appendix found hanging over brim of pelvis, gangrenous in distal half and perforated. Abdomen contained thin pus, not walled off. Appendix removed. Cigarette drain to pelvis and appendix stump. Temperature normal on second day. Convalescence apparently satisfactory. On the tenth day, colicky abdominal pain; on the eleventh, pain more severe, abdomen beginning to distend, enemata ineffectual, vomiting. On the twelfth, condition similar, pain more severe in the evening, vomiting faeculent. On the thirteenth day, general condition serious, abdomen distended, its superficial circulation sluggish, distended intestinal coils visible. Operation: ether; incision through right rectus muscle to inner side of original incision. Peritoneal cavity clean. Glass tube tied in presenting distended bowel. Following operation, free discharge through tube. Bowels moved by rectum on fourth day. Gradual closure of fistula. Discharged on 48th day. Patient writes Jan. 23, 1914, wound healed completely three weeks after going home. General health excellent. No disabilities.

Case 5. Ileostomy; recovery. N. L., male, aged 9, patient of Dr. Duggan, Milford, Mass. Operation May 5, 1916, at Milford Hospital; removal of a gangrenous appendix lying in a localized abscess to the the outer side of caecum close to the abdominal wall; drainage. Convalescence unsatisfactory from the beginning with tendency to distention, occasional vomiting and abdominal pain. Enemata at first gave partial relief, but distention gradually increased, the vomiting became more persistent and faeculent in character. On the eighth day, enterostomy through the original incision by another surgeon. This resulted in a moderate amount of faecal discharge and slight improvement in general condition for a few hours. The distention and vomiting persisted, however, and the child's condition became desperate. On the tenth day ileostomy through an incision through the inner border of the right rectus muscle. The abdomen was free from adhesions except in the region of the original wound. Glass tube tied in distended loop of bowel running toward these adhesions. The vomiting and distention were relieved. Three days following operation, there was a free movement by rectum. Movements by rectum continued, the discharge through the two enterostomies, at first large in amount gradually diminished, and he was discharged on the forty-first day following the original operation, the enterostomies practically closed. His father writes, December 7, 1919, that the boy is well except for nervousness, the wounds have remained healed and he has no pain.

Case 6. Ileostomy; recovery. V. M., girl, aged 8, patient of Dr. Joslin, Milford, Mass. Appendectomy with drainage for acute appendicitis by another surgeon February 1, 1917. Temperature 101°, dropping to normal on third day. Convalescence as satisfactory until evening of the fifth day, when severe cramplike abdominal pain developed with repeated vomiting. Obstruction was complete for 24°, after which the bowels moved freely. On the tenth day, recurrent abdominal pain, with repeated vomiting. I saw her on the morning of the eleventh day when obstruction had been complete for 24°. Her abdomen was distended with prominent coils of small intestine visible in active peristalsis. Although it was obvious that this obstruction might relieve itself as the previous one had, it seemed safer under the circumstances to provide drainage. Operation, February 12th; ether, incision through inner border of rectus muscle. Abdomen free from adhesions except in region of old wound. Ileostomy by means of glass tube in loop of ileum as near as possible to adherent point of obstruction. Good recovery. Bowels moved freely three days later, and regularly thereafter. Gradual lessening of faecal discharge from ileostomy, which closed spontaneously before discharge on the thirty-fifth day. November 22, 1919, her father writes that she is well, the wound has remained healed, and that she has had no pain or discomfort from the operation.

Case 7. Ileostomy; recovery. Massachusetts General Hospital Record No. 216397; boy, aged 9. Operation, July 27, 1917; ether; appendectomy with drainage for acute appendicitis and diffuse peritonitis. A large quantity of thick free pus in abdominal cavity. Appendix gangrenous and perforated. Following operation vomiting ceased, and gas was occasionally passed, but moderate distention persisted and his condition was never satisfactory. On the fourth day, distention increased, partially relieved by enemata. On the sixth day, vomiting developed with marked abdominal pain. On the next day vomiting and pain continued. Enemata were without effect; distention was increased. Operation: median incision with novocaine anesthesia. Glass tube tied in dilated ileum with purse-string. Intestinal coils adherent with soft adhesions. The following day vomiting ceased, and distention was less. Five days after ileostomy there was a voluntary movement by rectum. The discharge from the ileostomy greatly decreased in the next ten days, and had almost ceased two days later. The boy was discharged on the thirtieth day, wound practically healed. His mother reports by letter November 23, 1919, that the boy's general health is very good, and that he has no discomfort except from a recurring sinus in his original appendix incision. The ileostomy has remained healed.

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[3] David Cheever: Boston Medical and Surgical Journal, 1913, Vol. clxviii, p. 719.

THE SURGICAL TREATMENT OF ACUTE EMPYEMA BY VALVE DRAINAGE, PROVIDED BY FLAP OF SKIN, FASCIA, AND MUSCLE, UNDER LOCAL AND PARAVERTEBRAL ANESTHESIA.

By William Reid Morrison, M.D., Boston.

Most surgeons agree that operations involving the opening of the thorax should provide proper closure of the chest wall, to prevent air going in and out of the wound, causing partial collapse of the lung, mediastinal flapping, pneumothorax, and subsequent chronic empyema. At the same time, adequate drainage must be provided for collections of pus, whether free in the pleural cavity, encapsulated between the lobes of the lung, or walled off between the lung, spine, ribs, or diaphragm.

A valve of skin has been advocated by Dr. Fred B. Lund to prevent chronic empyema, which so often occurs after the old-fashioned method of making a direct opening in the chest with "collar-button," tubing or gauze drainage. The valve also eliminates considerable shock which would be present otherwise. Most satisfactory results have been noted by the author in civil practice by the use of this method.

Experience has convinced the writer that a flap of skin only, particularly in thin patients, is not as satisfactory as a valve of skin, subcutaneous fat, fascia, and muscle. The thicker flap occludes the opening in the thorax perfectly, while the skin flap alone tends to retract when the stitches are removed four or five days after operation. The skin flap only is infinitely preferable to the direct opening in the chest, and in most cases where a valve is used, the lung has expanded, obliterating any cavity which has not been of long standing, with thick, leathery walls.

Through the courtesy of Lieutenant Colonel Homer B. Smith, the author had the opportunity of operating on a consecutive series of acute empyema cases admitted to Base Hospital 51, of the Justice Group at Toul, France, during the war.

All of these cases were operated on under similar conditions. A hypodermic injection of one-quarter or one-sixth of a grain of morphine was given subcutaneously one-half hour before operation, according to the size of the patient. (Scopolamine, or atropine, one hundred and fiftieth, or one-hundredth of a grain may be given in addition to the morphine.) The instruments and sterile goods were arranged on the table, and the operator and assistants were ready to operate immediately, when the patient was brought to the operating room, to avoid delay. Benzine and half-strength tincture of iodine was used for skin preparation. As local and paravertebral anesthesia was employed in each case, Crile's anoci-association technique was carried out as far as possible, special care being taken to have neither display, nor rattling of instruments, which were hidden by sterile towels. The patient was placed in a half-sitting position on the operating table, with warmed blankets under, as well as over, the body and legs. Care should be taken that the patient does not roll on the unaffected side, in the recumbent position. Serious, if not fatal, embarrassment of respiration may result, due to compression of the over-worked opposite lung. This is caused by the mediastinum being pushed over by the pressure of the fluid in the infected pleural cavity. The author has seen a death in civil practice because of failure to observe this precaution. One-half of one per cent. novocaine solution was used, and when novocain was unobtainable, one-eighth of one per cent. cocaine solution. Paravertebral anesthesia, blocking the intercostal nerves combined with the local infiltration in the skin and underlying soft tissues in the region of operation, is the anesthesia of choice for this type of chest surgery, and in the writer's hands, it has proved most satisfactory.

This method of draining the chest by an indirect opening, with formation of a valve (whether or not a pleurotomy or rib resection is made) renders the operation painless, with little or no shock to the patient, provided the nerve impulses are thoroughly blocked by an experienced operator.

In the ordinary empyema cases which have pus free in the pleural cavity, the valve should be placed posteriorly, draining the chest by means of a pleurotomy through the eighth, or preferably the ninth interspace, or resecting the eighth, or better the ninth rib, if necessary. The dependent part of the chest is properly drained, with the patient sitting or lying in bed. The tenth rib may be resected, but injury to the diaphragm is likely to occur: if injured, it should be promptly sutured.

To make the valve, a six-inch skin incision is made parallel to, but a distance of one rib and one interspace below the rib or interspace selected. The underlying fat, fascia, and muscle are incised, and retracted upward the width of one rib and one interspace; the selected interspace is incised, or rib resected.

On opening the chest, pus is allowed to escape slowly, by the insertion of a gloved finger, and collections of fibrin, detritus, or foreign bodies are removed gradually. The position of the lung is determined, and adhesions between the lung and chest wall may be separated. The patient is told to cough, which usually brings the lung in close apposition to the chest wall. When the patient coughs, pus drains freely from the chest, and with each inspiration the valve of soft tissues closes over the opening in the thorax, causing a dimple over the resected rib, or interspace, thus preventing any inflow of air in the chest.

To insure subsequent drainage, a soft rubber tube two centimeters in diameter, and the width of the chest wall in length, is inserted in the oblique drainage tract. The outer end is sutured at its lower margin, to the inferior skin edge, with interrupted silk-worm gut sutures. The inner and outer ends of the tube of rubber are not cut transversely, but on a slant, and parallel to each other, making them flush with the chest walls. The skin incision is sutured loosely with interrupted silk-worm gut sutures, so that no tubing is seen at all. Gauze strips impregnated with boric ointment, or sterile vaseline, such as are used in the Dakin dressings, are placed about the wound to protect the skin, and plenty of gauze dressings are applied under a swathe. This dressing is not disturbed for several days, as advised by Dr. F. J. Cotton, but it is reinforced if necessary. On the third or fourth day, the stitches and tube are removed.

X-ray and fluoroscopic examinations were made before the operation and a series of plates were taken every three days afterwards; these plates demonstrated efficient valve drainage.

Four of my series were pneumococcus cases, all of which recovered.

1. Peter K., 2,418,856, Private, Company B, 147th Infantry. Eighth rib resected, posterior axillary line. (Seen at my office in November, 1919, in good health. X-ray by Dr. Samuel W. Ellsworth negative.)
2. Harvey S., Private, Company L, 18th Infantry. Ninth rib right resected, posterior axillary line.
3. John M., Private, Guard Company, 4th Repair Division. Ninth interspace left pleurotomy, posterior axillary line.
4. ——— ——— (name lost.) Tenth rib resection left, posterior axillary line.

One case of mixed infection, streptococcus and pneumococcus, John M., Private, Machine Gun Company, 139th Infantry, had ten centimeters of an exploring needle broken off in the lung by a medical officer. An encysted empyema was found in the anterior of the right chest, just above the diaphragm. Valve drainage was made through the anterior of the chest; the seventh rib was resected in the anterior axillary line, the needle was removed; the patient died a month later.

Another case of mixed infection: Private David F., 1,903,964, Supply Company, 326th Infantry, was operated on for gunshot wound of the abdomen, with perforation of the stomach, at a field hospital. On account of heavy shelling it was necessary to transport the patient to Toul, and in the ambulance, during a fit of coughing, he burst open the abdominal wound. The intestines were replaced in the abdomen and the wound resutured by the writer. Two months later during a stormy convalescence, the patient developed a left empyema, and he died two months after the operation.

There were six hemolytic streptococcus empyemas, of whom three recovered, and three died. At autopsy, Captain Pratt, the pathologist, was surprised to find no fluid in the affected chest, demonstrating the efficiency of the valve drainage.

Most of these cases, having seen active service at the front, contracted influenza while they were in poor physical condition, caused by exposure, poor nourishment, shell-shock, etc., with empyema following. Prostration was marked, the pulse often being 140 before operation, and each patient had the characteristic brownish watery fluid in large quantities.

1. Perry M. 2,846,421. Private, Company B, 342nd Machine Gun Battalion. Ninth interspace right, posterior axillary line. (Influenza and broncho-pneumonia at Field Hospital 148. Acute otitis media right.) Recovered.
2. Robert L., Private, 2,853,611, Company A, 360th Infantry. Eighth rib right resected, posterior axillary line. Recovered.
3. John E. H., Private, 2,005,423, 112th Infantry. Eighth rib right, resection in posterior axillary line. Died three days later.
4. William G., 294,987, Casual Detachment. Ninth rib resection, left posterior axillary line. Died three days after operation.
5. ——— ——— (name lost). Eighth interspace left. Pleurotomy, posterior axillary line, died in twenty-four hours.
6. ——— ——— (name lost). Eighth rib right resection, posterior axillary line. Recovered.

My impression is that the less done to these hemolytic streptococcus cases the better. Valve drainage is far better than the ancient direct opening in the chest, but I believe that the insertion of Kenyon's drain, as advocated by Willy Meyer, may become the operation of choice, with or without suction, in cases with free fluid in the chest. In my opinion many such cases are overwhelmed by the virulence of the infection, and they have not sufficient resistance to the hemolytic bacteria; such patients may die either with or without an operation. Fortunately hemolytic streptococcus empyema cases are rare in civil practice.

The wretched conditions, at times, in the active service of military life abroad were very different from those at home, consequently the spread of this virulent infection was increased and individual resistance was diminished.

At Camp Wheeler the writer had some experience with Carrel-Dakin irrigations; by its use the odor of the discharge was cleared up rapidly, and the wound rendered cleaner, but the convalescence was not materially altered. Irrigations had to be omitted in one case, because of violent coughing, caused by the solution, which was prepared freshly every day, and carefully titrated. It is very difficult to bring the solution in contact with all parts of a tortuous drainage tract after an open operation and this is one of the essentials for producing results by means of the Carrel-Dakin technique. Whittemore inserts rubber tubing through a trocar and irrigates with Carrel-Dakin solution, making use of negative pressure as well, in a closed method of draining the chest.

CONCLUSIONS.

1. The advantages of this valve drainage are:

a. An indirect valve opening is made in the chest.

b. A valve made of the living tissues themselves is the most efficient type, because it does not get out of order. Mechanical valves in aspirating trocars, and devices such as a rubber dam pasted on three sides of the wound, are less desirable.

c. In cases of pneumococcus and mixed infection, masses of fibrin, detritus and pus are readily removed. The gloved finger is able to break up any recently formed adhesions which may anchor the lung, and which may prevent its expansion. The patient is told to cough, and usually the lung expands readily, obliterating any cavity.

d. Foreign bodies, if any, may be extracted.

e. Collapse of the lung, mediastinal flapping and pneumo-thorax may be avoided.

f. More rapid convalescence, avoiding chronic empyema.

2. No empyema should be operated on before a careful consultation with the medical man in charge of the case.

3. Too early or too late operation is to be avoided. The duration, extent, and virulence of the process in the lung, embarrassment of respiration from large amounts of fluid, and progress of the case are the factors that influence the surgeon's judgment.

4. Local, combined with paravertebral injection, is the anesthetic of choice.

5. *a.* In pneumococcus cases, valve drainage with pleurotomy or rib resection with indirect drainage of the chest may be used to advantage.

b. In streptococcus cases, particularly in hemolytic streptococcus infection, Kenyon's tube, with or without suction, or repeated aspirations may be of value, allowing no air to enter the chest.

6. The surgical treatment should be supplemented by careful attention to a high caloric diet, principally milk and raw eggs for the first few days.

7. Medication in the form of digitalis leaves or other cardiac stimulants to tide over the lung infection, morphine for pain, tincture nux vomica as an appetizer, and later iron are given as indicated.

8. Good nursing, warmth, and fresh air are absolutely essential.

9. Early bottle-blowing and later proper gymnastic exercises are desirable to stimulate lung and chest expansion and prevent deformity.

10. A half-sitting position aids respiration and drainage after operation.

11. A direct opening into the pleural cavity should not be made in acute empyemata.

12. The writer has not been favorably impressed by the use of serological treatment.

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CHEST CONDITIONS RESULTING FROM WAR WOUNDS AND THEIR SURGICAL TREATMENT.

BY B. H. ALTON, M.D., WORCESTER, MASS.

IN writing this article it is my desire to bring before you a few conditions of the chest resulting from war wounds and their surgical treatment as practised in the British casualty stations in France.

War wounds of the chest vary in so many respects that an adequate description of them is almost impossible. Yet they have a similarity and present lesions of the same nature.

The type of wounds of the chest most frequently seen are those caused by bullets and shell fragments. The bullet wounds, especially the through and through wounds, are of little interest from a surgical point of view. The entrance and exit wounds are small and usually they go on to recovery without infection, or develop one of mild degree. Occasionally a bullet will carry into the lung a small amount of clothing which may later cause an empyema.

Wounds caused by shell fragments may penetrate the chest wall and lie on the surface of the lung, or bury themselves in the lung tissue at varying depths. Others may traverse the lung and pass through the opposite side of the chest causing much destruction in their flight. Others may cause a large wound on the chest wall which may gutter the lung, or a direct blow may fracture the ribs and cause a large wound on the surface of the lung.

One cannot judge from the size of the entrance wound just how much damage is done to the lung tissue. Oftentimes a fragment causing a more or less innocent entrance wound, tears a large ugly rent in the lung. Wounds of the lung often give rise to severe hemorrhage. Fragments tearing through the hilus and rupturing the great vessels of the mediastinum cause fatal hemorrhages. These are seldom seen at the advanced operating centers as they usually die on the field of battle.

If the entrance and exit wounds are closed and the lung is bleeding, the retraction of the lung and pressure of the haemothorax tend to check the hemorrhage. In these cases life is threatened less by the actual hemorrhage than by the compression of the heart and mediastinum causing a sudden dyspnea and probable death.

During the early period of the war these cases were usually treated by repeated aspiration which resulted in a high mortality. During the latter period of the war they were treated by opening the thorax and arresting hemorrhage by suturing the lung tissue which afforded perfect hemostasis. The latter method gave a much higher percentage of recoveries.

In the open thorax where free hemorrhage is present, it should be arrested at once by the proper surgical procedure. If the bleeding is coming from a parietal vessel, it should be ligated; if the lung is bleeding, suture of the lung tissue is indicated.

Secondary hemorrhage may appear up to several days after the primary hemorrhage has been arrested. This may be caused by allowing the lung to expand too soon after injury, or to a small piece of cloth retained in the track, causing an abscess with erosion of a large vessel following.

When the track of the fragment passes through the lung and where the damage is not excessive, the thorough cleaning of the track can be brought about by compressing the lung, thus bringing the exit and entrance wounds close together. A narrow strip of gauze is passed through the track which will remove necrotic tissue, pieces of cloth, and bone fragments. The entrance and exit wounds are closed by deep sutures. In this type of case, if the lung is allowed to expand too soon after repair a secondary hemorrhage is very apt to occur.

In the cases with gutter wounds or where the track is near the surface of the lung, the track can be excised completely and the lung surfaces brought together with deep sutures. In this type of repair the lung can be expanded immediately without danger of hemorrhage.

Two methods of expanding the lungs were used. Aspiration, which was done immediately following closure of the chest, or by inflation of the lung by the use of the small nitrous oxide apparatus. To expand the lungs with the nitrous oxide machine a close fitting mask is necessary. The anesthesia is given under pressure, which keeps the lungs expanded while the thorax is being closed. When the pressure is released the lungs remain expanded. I have not seen secondary hemorrhage occur where this method was used.

Many chest cases reach the casualty clearing station having a severe pulmonary hemorrhage. Usually they are in severe collapse, and many have large sucking wounds. Then the question arises,—can operation keep them from certain death? It has been definitely shown that an operation that is done rapidly, skilfully, and gently, saves many of these cases.

Surgical treatment of wounds of the chest has been greatly advanced during the war. As a whole they are treated like any other gunshot wound. Infection of the wounds of the chest and lungs is a great factor as in any other part of the body. The wounds show the same destruction and the same necrosis of tissue. Infection is carried into the thorax by the metal fragments, pieces of cloth, and bone splinters.

In war surgery the main object is to prevent infection of the wound. To accomplish this it is necessary to excise all devitalized tissue and to remove all foreign bodies.

In the earlier part of the war foreign bodies were not removed from the lung. Abscesses, pleuro-pulmonary infection, hemorrhage and empyema resulted. During the latter period of the war all accessible foreign bodies were removed with a marked decrease in mortality.

It has been definitely proved that a lobe of the lung can be delivered on the surface of the chest in the same manner as the abdominal viscera can be delivered on the belly wall. Manipulation of the lobe, incision, resection of devitalized tissue, suture and closure of the thorax is the accepted procedure.

The method generally used in extracting foreign bodies from the lung is to deliver the lobe and then compress the lung gently between the thumb and fingers. In this way the foreign body can be felt and it can either be removed through the track made by the missile or through an incision made over it. It is not enough merely to extract the fragment of metal from the lung tissue, for in its flight it usually carries with it pieces of clothing and bone splinters, which, if not removed, may set up a grave septic condition.

The cleansing of a gutter wound or of a track near the surface of the lung is a comparatively simple matter, as the whole track can be excised and the surfaces brought together with deep sutures. When we are dealing with a through and through wound of the lung a much different problem confronts us.

The entrance and exit wounds can be cleaned and sutured. Here we are taking a chance and hope that the infection in the track will be taken care of. At least the pleural cavity is being shut off from the infection from the lung.

In most through and through wounds of the lungs the track can be cleaned by the gauze method. However, if the track is easily accessible a complete excision is the surer method. The results have been much more satisfactory where the track has either been cleaned with gauze or by complete excision.

It is very essential that the lung surfaces should be carefully examined for splinters of bone that have punctured the pleura. Oftentimes they are seen sticking into the lung and some are driven beneath the surface. Most of these splinters carry infection due to contact with the missile, and if left in the lung, abscesses often develop around them.

Many of the chest cases have open wounds; they are spoken of as the open thorax, blowing or sucking wounds. Air passes in and out during each respiratory movement. These cases call for immediate operation as it protects the pleura against infection from without and also lessens the possibility of asphyxia, which often happens in an open thorax.

To lessen these two possibilities precautions were taken during the latter part of the war by having the open wounds plugged with gauze or the skin sutured over the opening at the advanced dressing station. As a rule, when these cases arrived at the casualty clearing stations, they were fit for immediate operation, and a fewer number of pleural infections resulted.

Surgical Procedure. Experience has shown that there is little to fear in allowing the air to enter the pleural cavity with complete collapse of the lung. It is necessary to handle the lung, to inspect it, to incise it, and to swing it about on its pedicle. In order to do these various things, the lung must be in a state of collapse.

All these maneuvers mentioned above. if they are made with gentleness, have no influence on the action of the heart. The respiration maintains its normal rhythm, frequency, and amplitude, and shock is at a minimum. General anesthesia is the method most frequently used, —nitrous oxide anesthesia is the method of choice, but chloroform and oxygen give very good results. Local anesthesia is used in suitable cases.

To remove thoroughly all the damaged and infected tissue of a wound of the chest, the wound must be completely resected. With large scissors the skin is removed from one-fourth to one-half inch from the edge of the wound. The damaged fascia, fat, and muscles are likewise removed. The opening into the thorax usually involves at least one rib. The fractured ends are removed well back from the damaged portions by means of bone forceps.

When the wound is thoroughly excised, it is enlarged to admit the hand. The removal of five inches of one rib is usually enough to admit the hand and to allow for free manipulation and delivery of the lung. Retraction on the neighboring ribs, above and below, widens the opening in the chest, making manipulation less difficult.

To deliver a lobe of the lung it is gently seized with light, elastic, non-crushing forceps, and by gentle rotary movements the lobe is delivered through the opening. It is received immediately in warm moist compresses, and is then carefully inspected on all its surfaces. After the lesion is located the opening into the thorax is plugged with wet gauze to obviate the to and fro movements of air during operation.

Gutter wounds, and tracks near the surface of the lung are completely excised. Large bleeding points are ligated, the general ooze is stopped when the lung surfaces are approximated by deep sutures.

This is best accomplished by using a large curved, non-cutting needle. A running stitch is used, and care must be taken to include the depths of the wound, and also to approximate accurately the pleural edges. These sutures should not have too wide a bite, in order to guard against their tearing through lung substance during inspiration, when tension is put on them.

When the foreign body is retained in a lobe, it is compressed with the hand, the foreign body is either removed through the track or an incision is made over it. The entrance of the track is excised, and it is thoroughly cleansed of all necrotic tissue, cloth and bone fragments. The entrance of the track is closed with deep sutures. The through and through wounds are treated in like manner, unless the track is near the edge of the lobe, and then it should be completely excised.

Each lobe should be examined separately. When all the damage has been repaired the lung is replaced within the thorax. The pleural cavity is then emptied of blood and clots. The blood is best removed with wet gauze well rung out. The clots are removed by sponges held in long forceps. Every portion of the cavity must be thoroughly explored and all clots removed.

The thorax is closed by muscle flaps. The muscles are sutured in one or two layers. The closure must be air tight. The air in the pleural cavity can either be removed at the time the thorax is being closed or later, by aspiration as described above. Spontaneous absorption of the air proceeds quite rapidly, but is not completely effected for several days. As a rule, the patient breathes more quietly and suffers less when the pneumothorax has been done away with.

After operation and closure of the thorax serous exudate usually appears. Repeated tappings often clear up this condition. In other cases exudate continues to accumulate and may become purulent. If the lung is kept more or less expanded by repeated tappings until adhesions take place to the chest wall, the empyema cavity becomes walled off, then free drainage is indicated.

In the early part of the war thoracotomy was practised on the lines of the civil operations for empyema. A small portion of the rib resected, the contents of the empyema cavity evacuated, and a large drainage tube introduced. Cases treated in this manner often remained with open wounds for weeks and months.

Later the Carrel-Dakin treatment was used. Instead of one large tube, several small tubes were placed at varying intervals over the cavity. Some gauze loosely packed around the opening and a return flow assured drainage of excess fluid. Dakin's solution was allowed to flow into the cavity in the usual manner. Cases treated with this method had a much shorter convalescence, the wounds were ready to close at the end of ten days to two weeks after treatment was begun.

All chest cases, whether they were being treated by the expectant or operative method were immobilized in a semi-recumbent position. Movements of all kinds are to be avoided, and therefore retention of the wounded man at the casualty clearing station for many days is very necessary. The fact that in the first two days the deaths are due chiefly to hemorrhage, and in later stages to sepsis, must direct the timely and appropriate treatment.

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PUBLIC HEALTH SERVICE APPOINTMENTS.—It has been announced that Dr. Rupert Blue, former Surgeon General of the Public Health Service, and Senior Surgeon Joseph H. White have been nominated assistant surgeons general at large of the Public Health Service.

Clinical Department.

A SEVERE CASE OF GAS BACILLUS INFECTION WITH RECOVERY.

By Donald S. Adams, M.D., Worcester, Mass.,
Resident Surgeon, Memorial Hospital.

[From the Surgical Service of Memorial Hospital, Worcester, Mass.]

Gas bacillus infection has for a number of years been a well defined surgical entity, but the war has shown us this type of infection in a far more realistic way. For this reason we should be more on the alert to detect its presence, and get ahead of it if possible; or at least treat the accompanying toxemia with more understanding. As gas gangrene is noted as a complication of wounds seen in civil practice, both in the city and country, it should interest everyone alike.

On the night of October 19, 1919, Mr. B. was admitted to the hospital on the service of Dr. B. H. Alton, with a diagnosis of gunshot wound of left leg. That afternoon, while hunting, he had dropped his gun, the hammer striking the running board of the automobile and the charge from a 16-gauge shell entered his left leg below the knee. Within the hour he had medical attention; the hemorrhage, which was severe, was controlled by a tourniquet. He was sent to the hospital, and in so doing, had to travel about 50 miles in an open machine.

Examination showed a man 33 years of age, well developed and nourished, but in a severe state of shock. His temperature was subnormal, pulse 132, respirations 30, and blood pressure low. In addition he was very cold; due to the exposure. He was warmed up by the application of heaters and blankets; stimulants, as caffeine, camphor and oil, and strychnia were given, and the severe pain eased with morphia. Antitetanic serum 3000 units also was given intramuscularly at this time.

The affected leg showed a ragged wound of entrance on the inner aspect of the upper third of the tibia. No wound of exit was found although a small hematoma in the popliteal space showed the position of the retained charge. Powder marks covered the upper leg, and the tibia was badly comminuted. Complete anesthesia existed below the knee, and no pulse could be made out in the dorsalis pedis or posterior tibial arteries.

At this stage the patient had not reacted enough to warrant any surgical procedure, so he was given 1500 cc. of normal saline containing 2% sodium bicarbonate by vein.

This treatment brought about a fair degree of reaction. Advantage was taken of this, and the leg prepared for operation with benzine and iodine. Light ether anesthesia was given, and a debridement was done, beginning at the wound of entrance. Loose fragments of bone were removed, damaged tissue excised, and the track of the charge cleaned to the popliteal space. A large amount of shot, wadding, and bits of the patient's clothes were removed.

A counter incision was made over the popliteal space and the hematoma turned out. The end of the track lay between the two heads of the gastrocnemius muscle, and at that point the popliteal artery and vein were found to be completely severed. The artery and vein were tied above and below, all damaged tissue excised, and the track packed with gauze soaked with Dichloramine-T 5%. The leg was immobilized on a long posterior wire splint, and the patient sent to the ward in fair condition.

The patient's condition remained about the same for eight hours after operation. The temperature was then 103°, pulse 130, and the typical appearance of shock again manifested itself. In addition he showed evidence of sepsis, with occasional periods of delirium. His skin was rather yellowish, suggesting hemolysis.

He was removed to the operating room and under local anesthesia given 825 cc. of fresh blood, paraffined tubes being used. Following this, signs of shock rapidly diminished and the color improved, although toxemia persisted.

His condition remained the same until the evening of the 20th, about 24 hours after admission, when his temperature rose to 104°, and symptoms of severe toxemia prevailed. He was delirious almost constantly. The dressing was not taken down at that time because of the patient's poor condition.

The lower limb, however, was devoid of circulation, and amputation was planned for the following morning. Another suitable donor was procured, and about 36 hours after admission he was again etherized. At that time the patient had to be restrained, and was in very poor condition.

On removal of the dressing the affected limb was found to be grossly infected with a gas forming organism. Well defined crepitus was elicited below the knee, with discoloration on the inner surface of the thigh, extending to the perineum. The wounds discharged a thin brownish fluid with a distinct gassy odor.

The case appeared hopeless, but to give the man the benefit of the doubt, a guillotine amputation was done about mid-thigh, with preservation of skin-flaps. Dichloramine-T dressings were applied to the raw surface. During the operation 800 cc. of fresh blood was given as described above, followed by 1500 cc. of normal saline containing 2% sodium bicarbonate.

Following this treatment the patient improved. He began taking fluids by mouth, and retained Murphy drip, containing 5% sodium bicarbonate. Within 10 hours he was again rational, and the infection had not progressed. A dressing was done and Dakin's solution substituted for the Dichloramine-T. Six perforated tubes were used and the instillations given hourly. From then on, the patient rapidly improved. Evidence of infection about the perineum and upper thigh disappeared. The stump granulated in well without infection of the end of the femur. As soon as the count was low enough, secondary suture was done under gas oxygen anesthesia. The result was excellent. At the present time the patient is ready for discharge.

In summarizing this case, we are interested in noting that we have a patient who, having received a gunshot wound, develops gas gangrene up to his perineum and groin within 36 hours. A type rapid in its advance, and yet controlled by amputation through, and not above, the active process. A case so far advanced as this would have been considered hopeless in France, and relatively few recovered, even when the most radical measures were employed.

It is difficult to explain this unless we can say that the organisms found in this country are less virulent than those obtained from the much worked over soil of Europe. Or, again, symbiosis may take a part. In the above case the bacillus was grown together with a slight growth of staphylococcus aureus. Had there been streptococcus present, there might have been a different outcome, for it was well recognized that those cases of gas bacillus infection seen abroad where streptococcus, especially the hemolytic type, was found, the prognosis always was very bad. This was explained by the fact that the streptococcus aided the growth and progress of the gas-forming organisms, or vice versa; or the combined toxins of the two strains were too much for the patient's powers of resistance.

The treatment consisted of giving blood to replace blood lost and to raise resistance. Sodium bicarbonate solution was used to dilute toxins and to hasten the elimination of acid bodies. Heat is always essential in cases of shock.

The use of Dichloramine-T and Dakin's solution with final secondary suture, is but the outgrowth of the war. It has, and I hope it will continue to have, a place in civil practice in certain types of cases.

In conclusion I might say that, had a lower third amputation been done on admission, gas infection might not have manifested itself. However, it was hoped that the anastomosis would take care of a portion of the upper part of the leg, thus giving a more useful limb, as the knee-joint was unimpaired.

I desire to thank Dr. Alton for the privilege of reporting this case.

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Book Review.

War Wounds of the Lungs: Notes on their Surgical Treatment at the Front: By PIERRE DUVAL: With 27 plates and illustrations. Authorized English translation. New York. William Wood and Company. 1918.

Duval presents a small book, less than one hundred pages, well printed and exceptionally well illustrated. He advances the theory that "Surgery of the lung takes its place amongst the recognized procedures of general surgery; and that the surgery of gunshot wounds of the lung must be governed by the priciples of surgery as applied to any other gunshot wound; that is to say, removal of all foreign bodies (metal fragments, splinters of bone, pieces of clothing), excision of the wound, and complete suture." This, he says, is revolutionary, but it does not seem to be quite so revolutionary as he at first suggests, since there are a considerable number of contraindications for operation. He believes it better not to administer a general anesthetic, local or regional being preferable.

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BOSTON MEDICAL AND SURGICAL JOURNAL
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THE REGISTRATION OF PHYSICIANS.

THE successful practice of medicine consists in the application of facts which have been acquired in medical schools and applied in hospitals under supervision. Although the success of an individual may be increased by his natural ability and individual brightness it is practically impossible for one to furnish the public proper service unless his fundamental medical training has been good.

It has been suspected for some time from the evidence met with in hospital practice and elsewhere that many practitioners of medicine are not employing all the aids to diagnosis and treatment that should be used. This suspicion was confirmed in the recent war by the discovery that many of the physicians who entered the service were not able to perform properly the various procedures demanded by the medical department of the United States Army.

A study of this question revealed the fact that these physicians had not been thoroughly trained in the fundamentals of medicine and had not had the opportunity to apply the knowledge by hospital training. A persistent and successful effort has been made in recent years to force the medical schools of the country to improve their standards, and the tendency towards demanding a year's interneship in a hospital as a requirement for practice is strongly marked.

In addition the various states have attempted to protect the public from poorly trained physicians by the establishment of boards of registration to examine candidates to see if they are fit to practice. The boards act in accordance with the existing laws in regard to the registration of physicians in the different states. These laws should include not only a statement in regard to the character of the medical course required but also a statement in regard to the premedical requirement. By this latter method alone it is possible to force the poorly equipped schools to improve. For with a sufficient premedical requirement a student will be qualified to enter a number of what might be termed Class A schools and therefore the poor schools would be forced to improve in order to attract students.

It is now pretty generally conceded that a student cannot successfully complete the work of the first year of a proper medical school without a preliminary training in physics, chemistry, and biology, and therefore to allow a student to enter a school of medicine without this preliminary training means that the student will be handicapped throughout his medical career by a poor medical training. There is nothing more pathetic than the earnest student who has been lured into a poor medical school with the hope of saving some time in preparation, only to find when it is too late that his preparation has not fitted him to make a success of his life's work.

Massachusetts has been behind most of the other states in adding a premedical requirement to its laws for registration in medicine. Recently there has been presented to the legislature a bill (House No. 1173) which provides for a premedical requirement as follows:

> Graduation from a standard high or secondary school and satisfactory completion of at least two years of study in a college of liberal arts or scientific institute or school recognized

as reputable by the department of education of this Commonwealth, which college of liberal arts, institute or school, has required not less than nine hundred and sixty hours of work during the said two years. An applicant who offers evidence of study under the provisions of this section must have devoted not less than one hundred and ninety-two hours to the study of chemistry,one hundred and twenty-eight hours to the study of physics, one hundred and twenty-six hours to the study of biology and ninety-six hours to the study of English composition and literature.

This bill was formed as a result of a conference between representatives of the Massachusetts Medical Society, the Massachusetts Homeopathic Medical Society, the State Board of Registration in Medicine, the Boston University School of Medicine, The Harvard Medical School, and the Tufts Medical School, and has the backing of these various organizations. The School of Osteopathy and the State Osteopathic Society were invited to the meetings and asked to join in the support because the courts of Massachusetts have held that the practice of osteopathy was the practice of medicine and that therefore these practitioners should be subject to the same laws as other physicians. Unfortunately these organizations did not care to support this bill.

It is hoped that this bill, which is backed by so many various medical elements in the State and which is designed not only to protect the public from improperly trained practitioners, but also to protect the student from wasting his time and money in poor medical schools, will receive favorable action by the legislative committee and that every physician will urge upon his representative the importance of its passage.

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THE PALMER MEMORIAL FOR INCURABLE DISEASES, INCLUDING CANCER.

In recognition of the need of a refuge for persons suffering from incurable diseases,. including cancer, the New England Deaconess Association has secured the coöperation of the Cullis Home in Roxbury. At the present time there are in Boston under Protestant management only twenty-four beds which may be occupied by patients suffering from cancer whose cases are beyond cure and whose death is certain, and none of these is for men. The records of the State show that there are no additional opportunities for care under Protestant management within Massachusetts. The Holy Ghost Hospital in Cambridge, under Roman Catholic auspices, has one hundred beds for incurable patients, including cases of cancer.

The Cullis Home was founded by Dr. Charles Cullis in 1864 and incorporated in 1871. The estate consists of sixteen acres of land, situated opposite Franklin Park, in a location admirably suited to its purpose. Dr. Cullis was one of the first to recognize the desperate needs of the consumptives, and established the Cullis Home for their care, giving his services and financing the enterprise through the application of his entire income and the gifts of friends. Only consumptives in the last stages of the disease, and without means of support or friends able to care for them, were received. Now that the State has recognized the obligation to such persons, the Cullis Home is free to include among its patients other incurable patients. The institution will be conducted in future by both the Cullis Home Association and the New England Deaconess Association; the purpose of the Cullis Home trust funds, with which the buildings were erected, will be carried out, and the Deaconess Association will be able to realize more fully its wish to minister to the sufferings of incurable patients. It is hoped that one million dollars can be raised for carrying on the future work of the Association. Patients will be admitted without restrictions either in regard to nationality or religion.

The charter of the New England Deaconess Association permits it to "provide a home for those needing refuge, care, or shelter, and to make contracts therefore with such as are able to pay for the same, and devise and carry out plans for the protection, relief, education and training of neglected, poor, sick or unfortunate persons." This purpose has been kept in mind and the work of the hospital has been pursued with gratifying success. Every year about two thousand patients are turned away because of lack of beds, and the need for the care of incurable cases has grown increasingly acute.

The financial burdens of the New England Deaconess Association have been so heavy because of its war deficit and its constantly growing work that probably it would have felt it necessary to defer the assumption of additional obligations just at this time, had not the facts brought to light by the experiences of Mrs.

Jennie C. Palmer revealed the great necessity of undertaking this new work at once. Cancer is one of the most distressing of incurable maladies, and the American Society for the Control of Cancer has estimated that "cancer is of greater frequency at ages over forty than tuberculosis, pneumonia, or typhoid fever. One woman in eight and one man in fourteen over forty years of age dies of cancer." The need which will be filled by the Palmer Memorial for Incurable Diseases, including Cancer, is a great one, and it is hoped that the New England Deaconess Association will be supported generously in its endeavor to provide institution and hospital care for one of the most unfortunate classes of human sufferers.

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BULLETIN OF THE LEAGUE OF RED CROSS SOCIETIES.

We have received recently from Dr. Richard P. Strong, General Medical Director of the League of Red Cross Societies, Geneva, a copy of one of the first issues of the *Bulletin* of the League of Red Cross Societies, describing the character of the work which the League hoped to undertake in connection with international public health problems. Announcement is made that the first meeting of the General Council of the League will be held at Geneva on the second day of March, 1920, for the purpose of appointing additional governors and for discussing the progress of the League along the lines indicated at the Cannes Conference and its general policy of future development.

The *Bulletin* is of international interest, inasmuch as letters and communications from various foreign countries are published in its pages. Contributions to the present issue include interesting articles describing the antityphus campaign in Poland, the health campaign to be conducted in Eastern Europe by the Swedish Red Cross, the methods adopted by the Spanish government in the prevention of infectious diseases, the activities of the French Red Cross in the campaign against tuberculosis, the Italian Red Cross Sanatorium in Pozzuali, and the development of the Chinese Red Cross.

The future columns of the *Bulletin* of the League of Red Cross Societies will make known not only the special problems of individual countries, but also various health problems of international importance in the solution of which the Red Cross Societies of all countries may coöperate.

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MEDICAL MATTERS BEFORE THE LEGISLATURE.

A few weeks ago the Journal in an editorial article expressed the opinion that physicians had no special right to be heard on the social aspect of the question whether it was wise for the state to undertake the policy of maternity aid. On the medical aspects of the question physicians ought to interest themselves.

Today we wish to call attention to two reports from the Committee on Legislation, one published a week ago on health education, the other in this issue on vaccination, and to urge upon the medical profession their right and duty to make themselves heard as physicians on these matters. Vaccination against smallpox and the physical well being of our school children are matters of such prime importance to the state that every physician should do all in his power to lay before the members of the Legislature and the general public the whole truth regarding these subjects. There is no question whatever but that the Legislature would enact laws extending vaccination to all school children if the medical profession as a whole impressed upon their senators and representatives the need and reasonableness of such action. The efforts of the Joint Committee on Legislation, together with the work of the auxiliary members of the committee, does a great deal, but if four thousand physicians instead of a hundred informed themselves of the wonderful results of vaccination sufficiently to lay the facts before the public and all the members of the Legislature the health of the state would be safeguarded along this line as never before.

As regards the physical training of school children, all that need be asked is an absolutely impartial consideration of the bill presented by Senator Chamberlain. Massachusetts has a very large urban population. She has a very large foreign population, many of whom come from the mild sunny climate of the Mediterranean. These people, accustomed at home to a free outdoor life, are often crowded into tenements which have little sunshine, and offer no real opportunity for any outdoor life. The children suffer in health. The conditions found by the draft boards were a shock to our self-complacency. The Chamberlain bill is one step toward making such conditions impossible in the future. The bill avoids all the objections raised at the hearings against some of the measures proposed. It is a simple easily understood bill to better the physical condition of school children. It has no other motive whatever. It is not easy to understand the determined opposition to the measure. Here again, if the physicians of the state could but present the facts to the public, all opposition to the bill would be swept aside. Earnest aggressive effort alone is required.

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BIOGRAPHY OF SIR WILLIAM OSLER.

Lady Osler has requested me to prepare a biography of her husband, and I will be most grateful to anyone who chances to see this note, for any letters or personal reminiscences, or for information concerning others who may possibly supply letters.

Copies of all letters, no matter how brief, are requested, and if dates are omitted it is hoped that they may be supplied if possible.

If the originals are forwarded for copy they will be promptly returned.

Harvey Cushing, M.D.,
Peter Bent Brigham Hospital,
Boston, Mass.

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MEDICAL NOTES.

Massachusetts Health Report.—The annual report of Dr. Eugene R. Kelley, commissioner of public health of Massachusetts, shows that the lowest typhoid fever rate known to medical history in the United States has been reached in Massachusetts, that tuberculosis is declining at a reasonably rapid pace throughout the State, and that the mouth hygiene activities inaugurated by the health department are demonstrating their value already. On the other hand, the report states that the average infant in New York has nearly a fifteen per cent. better chance of survival than the average Massachusetts baby, and that the death rate from diphtheria is still needlessly high.

The three following extracts from the report, summarizing the typhoid, tuberculosis, and diphtheria problems, are enlightening:

"Eternal vigilance is the price of freedom from typhoid epidemics. In this field the policy of constant watchfulness by the district health officials and epidemiologists and the increasing efficiency of the local boards of health, working in closest possible coöperation with our staff, shows such striking results that they are obvious at a glance. Assuming that the present machinery for disease prevention is maintained and gradually improved, I can see no good reason why we may not predict with some confidence the practical extermination of endemic typhoid in this commonwealth within the next decade."

"The tuberculosis problem is inextricably interwoven with the problem of child hygiene and especially with the problem of childhood and adolescent nutrition. For this reason, as well as for many others, I feel it should become a major policy of this department to foster and stimulate in every way all movements designed to improve the nutrition of the growing child. Small but not insignificant beginnings of work in this special field have been inaugurated by the division of hygiene, but it is to be hoped that this department, educational authorities, all boards of health and many other organizations may expand nutritional work to a very great extent in the immediate future. In the field of adult pulmonary tuberculosis the great objective may be summed up in the problem of 'getting them earlier.' The chance of cure or undefinite 'arrest' of consumption by a period of treatment in our tuberculosis institutions bears almost a direct geometrical ratio to the promtness with which the disease is recognized and the patient admitted."

"Diphtheria is perhaps more definitely controllable than any other serious disease of an acutely infectious nature. By laboratory methods it is possible to detect its presence, to detect its carriers, to determine what individuals are susceptible to it, and by simple and harmless methods to render artificially such susceptible persons immune for long periods of years, to combat the poison of the disease with complete success by means of antitoxin if this is administered within the first 24 hours. With this in view, the department has again inaugurated an intensive campaign designed to arouse the public as to the importance of having every 'suspicious' sore throat seen early by a competent physician."

Election of Dr. Ludvig Hektoen.—The Pathological Society of Philadelphia has elected as an honorary member Dr. Ludvig Hektoen, of the John McCormick Institute for Infectious Diseases, Chicago.

Personal Characteristics of Sir William Osler.—An article in a recent issue of the *Medical Press* mentions the tributes paid to the personal characteristics of the late Sir William Osler, and in particular, to his love of books, at the twenty-seventh annual meeting of the Bibliographical Society, of which he was the president during the last seven years of his life. The following extract is of interest:

> Sir William Osler had remarked, on the celebration of his 70th birthday, in July last, that the love of his life had been divided equally between books and men. Of his eminence in his profession, of his great powers of intellect, his organizing capacity, and his immeasurable friendliness and kindliness, a great deal had been said by the Press; but mention of his purely literary side had been singularly lacking. As the president of that society for more than double the period which had been allowed to any of his predecessors, he had carried on its life with a generosity and a contribution of his own energy of which one could not say too much. He was one of the mainstays of the Bodleian, and a constant friend to it; that library was his admiration and delight, and whenever there was an adequate opportunity of obtaining some treasure for it he gave help not only from his purse but by writing to the Press and arousing interest. Three high principles in particular Sir William Osler set before himself: one was to carry out the golden rule by acting towards his patients and all men as he would they should do to him; another was to acquire equanimity alike in success and in failure; and a third was to do the present day's work well, not caring too much about the future. Sir William had a wonderful way of appearing to place his time at the disposal of those to whom he came, and he accompanied that behaviour with looks and words of rare compassion to those who were in ill ease, of true encouragement to those who were striving with difficulties, and with most real sympathy to those who were in doubt or trouble. Surely such conduct was near akin to the Divine. His great powers were always associated with the truest kindness, and the whole of his life was given to the welfare and betterment of his fellows."

Honor for Dr. E. V. McCollum.—Dr. E. V. McCollum has been made corresponding member of the Académie Royale de Médecine de Belgique. Dr. McCollum is the professor of chemical higiene of the School of Higiene and Public Health, Johns Hopkins University.

Appointment of Dr. H. D. Thomason.—Dr. H. D. Thomason, recently retired as Colonel in the Medical Corps of the Army, has assumed the duties of Superintendent at Flower Hospital, New York City.

Frederick A. Packard Lecture.—The annual Frederick A. Packard Lecture of the Philadelphia Pediatric Society was delivered by Sir Arthur Newsholme at the College of Physicians on February 10. His subject was "Neo-Natal Infant Mortality."

Appointment of Dr. H. G. Fitzgerald.—Dr. H. G. Fitzgerald has been appointed professor of hygiene at the University of Toronto. He will succeed Dr. J. A. Amyst, who has received an appointment as deputy minister of health in the Federal Department of Health, Ottawa.

European Health Conditions.—Dr. Hugh S. Cumming, Surgeon General of the United States Public Health Service, succeeding Dr. Rupert Blue, returned from his duties in Europe to assume his new position in Washington on March 10. For two years Dr. Cumming has been in Europe, acting as the official representative of the United States Government on various international health boards, and studying conditions of disease and public health.

In regard to the epidemic of typhus fever which is spreading over many Asiatic countries, Dr. Cumming is reported to have said that typhus, far from being checked seems to be increasing so that there is imminent danger of the epidemic invading Europe on a large scale, unless the strictest quarantine regulations and other control measures are enforced. Once the disease were entrenched at European ports, the next danger point he believes, would be the United States, although it is probable that it would not be difficult to check typhus even if it should invade America, because of different living conditions here. Dr. Cumming advises that nothing should be left undone to keep out bubonic plague, for at the present time this disease is present in practically all the Mediterranean ports, and constitutes a serious menace to this country. European health authorities consider the quarantine regulations of the United States so well adapted to check the invasion of either typhus fever or bubonic plague, that these regulations have been recommended for adoption by other nations.

Referring to international health relations, Dr. Cumming is said to have stated that an agency will be established soon under the

League of Nations, which will coördinate and strengthen the health work of all nations, and will improve particularly the reporting of diseases and the maintenance of quarantine between nations.

A meeting is to be held in London on April 12 to which official representatives of the health departments of various nations have been invited, It is believed a permanent organization will be formed at that time. The United States will send a representative to this conference.

American Posture League.—At the annual business meeting of the American Posture League held on Saturday afternoon, March 13th, the following officers were elected: President, Jessie H. Bancroft; Vice-President, Frederick R. Green, M.D.; Secretary, Henry Ling Taylor, M.D.; Treasurer, George J. Fisher, M.D. Executive Committee: Jessie H. Bancroft, Frederick R. Green, M.D., Eliza M. Mosher, M.D., George J. Fisher, M.D., Henry Ling Taylor, M. D.

The annual public meeting for the League has been postponed to the week of April 5th when the American Physical Education Association holds its annual Convention in NewYork.

The National Anaesthesia Research Society.—At a meeting of the Board of Governors of the National Anaesthesia Research Society held in Cleveland in March, it was voted to have the annual convention of the Society at Pittsburg the week of October 4, this meeting to be in conjunction with that of the Inter-state Anaesthetists Association, and the Pennsylvania Medical Society. It is possible that the Western Pennsylvania Dental Association also will join in the meeting.

In order to augment interest in the primary purpose of the Society, which is research, the Governors voted $200 to be apportioned in prizes for the best papers on research in anaesthesia, such papers to be read at the national meeting. This offer is open to all students, surgical, medical, and dental practitioners in the United States.

Canvas of hospitals having revealed need for a uniform anaesthesia chart, a committee of three was appointed to prepare forms. The committee consists of Dr. A. F. Erdman of Brooklyn, Dr. A. H. Miller of Providence, and Dr. E. I. McKesson of Toledo. It was also decided to prepare and publish at the earliest moment possible a monograph on the best practices in anaesthesia in obstetrics.

Announcement was made of the acceptance of the following well-known physicians, dentists, and anaesthetists as members of the research Committee: Dr. F. C. Mann, Rochester, N. Y.; Dr. John Evans, Buffalo, N. Y.; Dr. A. E. Guedell, Indianapolis, Ind.; Dr. William Harper DeFord, Des Moines; Dr. W. E. Burge, University of Illinois; Dr. Wm. Hamilton Long, Louisville, Ky.; Dr. J. Griffith Davis, Baltimore, Md.; Dr. J. J. Buettner, Syracuse, N. Y.; Dr. Tyler, Philadelphia; Dr. Isabella C. Herb, Chicago; Dr. A. F. Erdman, Brooklyn; Dr. A. H. Miller, Providence; Dr. W. B. Howell, Montreal, Canada; Dr. R. S. Hopkinson, Milwaukee; Dr. Oel E. Lamphear, Kalamazoo; Dr. W. I. Jones, Columbus; Dr. Theo. Casto, Philadelphia; Dr. S. P. Reimann, Philadelphia; Dr. John Polak, Brooklyn, N. Y.

BOSTON AND MASSACHUSETTS.

Physicians in Government Service.—The Civil Service Commission recently advertised for physicians in the Government Service. There are at least two vacancies in Boston, and physicians interested can get detailed information from the local Secretary of the Civil Service Commission, at the Custom House, 15th floor, Boston, Mass., or from Dr. J. A. Nute at the U. S. Immigration Station, Long Wharf, Boston,

Public Bequests.—By the will of the late Miss Helen L. Stetson of Lynn, the Massachusetts Homeopathic Hospital will receive five hundred dollars and the Lynn Hospital three hundred dollars.

NEW ENGLAND NOTES.

War Relief Funds.—The following New England war relief funds have acknowledged the following contributions:

French Orphanage Fund	$565,649.49
French Wounded Fund, for the American Hospital at Rheims	325,517.76
Italian Fund	322,676.68
Fund for Devastated France	189,663.60
"Friends of Poland"	143,494.88

Obituary.

DR. ELMER ERNEST SOUTHARD.

BY WILLIAM N. BULLARD, M.D.

DR. ELMER E. SOUTHARD was born in Boston in 1876, was educated in the public schools, and entered Harvard College in 1893, graduating with the degree A.B. in 1897, and A.M. in 1902.

As a boy he seems to have been in no ways unusual except that he took too many medals and prizes at school. In college he was much interested in philosophy and studied under both James and Royce. This interest lasted him throughout life, and as long as Royce lived and taught, Southard attended his seminaries at Cambridge. Once, indeed, when Royce was incapacitated, Southard took some of his work for a time.

His chief outside interest while at college was chess. He became an expert amateur chess player, was chosen to represent Harvard in the matches with Yale, and was a member of the Harvard Chess Club. In later years when he was working hard in the Medical School or Hospital, he told me that his relaxation used to be to go down to New Haven in the evening and play chess all night. He sometimes played chess blindfolded. The very unusual powers thus shown undoubtedly displayed themselves later in his work.

On leaving Harvard College, Dr. Southard entered the Harvard Medical School, taking his M.D. degree in 1901. He was made pathological interne in the Boston City Hospital in 1901 and later assistant in pathology to 1903. In 1901-2 he was for a time at Frankfort and Heidelberg. In 1904 and 1905 he was assistant visiting pathologist at the Boston City Hospital, and at this time (1904-1905) became instructor in neuropathology in the Harvard Medical School. From this time on he continued steadily in the work of neuropathology, his life work, becoming Assistant Professor in 1906 and in 1909 Bullard Professor of Neuropathology, which position he held at the time of his death.

Dr. Southard, in later years especially, was a prolific writer. He read many papers before many medical societies and associations, and he was a member of all the prominent national medical societies in his line and many others. His first paper of which we have record, published in 1901, was "A Case of Glioma of the Frontal Lobe," a purely pathological account of a cerebral condition. He wrote little in the next two years, but in 1904, or 1904-1905 published six papers, all purely pathological. In 1905 and in 1905-1906 we find five papers written either alone or in collaboration with others, all, as before, neuropathological in the narrowest sense (pathological). In 1906, Dr. Southard became pathologist at Danvers State Hospital and he held this position and that of Assistant Physician in the same hospital from 1906 to 1909. We have records of four papers published in 1906 and two in 1907, all of the same pathological nature. The "Outline of Neuropathology" was published in 1906. During these years (1906-1909) Dr. Southard was much occupied at Danvers not only in collating and arranging his thousand autopsies in order to form a basis for his future work, but in attending the early morning clinics at the hospital, and in very interesting investigations with Dr. Gay into certain aspects of anaphylaxis. This work was especially valuable to Dr. Southard, as it was the first opportunity to widen and broaden his field of work. How important this was he early perceived, and he understood that neuropathology, as it should be conceived and as it was defined from the terms of the gift of endowment of the Professorship, was not simply the study of pathological details, however important a part these might play as a foundation or basis for other investigations, but comprised many wide and far-reaching issues, touching and forming links with many allied subjects. Many of these allied subjects became, as they were more nearly approached and more closely examined, so intimately connected with and concerned in the stricter neuropathological investigations that they necessarily became a part and were included in the observations and researches of the more experienced neuropathologists. They became an actual part of the subject of neuropathology in its widest and true aspect.

From this time on the scope of his work grew ever wider and wider. He also studied other collateral lines of work, as when he went to England in the summer of 1907 to work with Sherrington on Physiology.

In 1907-1908 he published, with Dr. Gay, the article on "Serum Anaphylaxis in Guinea Pigs," which assumed much importance at the time, and he also published at this time four (4) other papers, all on pathological subjects.

In 1908, "The Relative Specificity of Anaphylaxis" was published in collaboration with Dr. Gay, and also four articles entitled "Further Studies in Anaphylaxis" with the same author. In addition to these there were seven (7) other papers, clinical or pathological.

In 1908-1909 was published in the *American Journal of Insanity* an article by Dr. Southard and Dr. Mitchell, entitled, "Clinical and Anatomical Analysis of 23 Cases of Insanity Arising in the Sixth and Seventh Decades, with Special Relation to the Incidence of Arterio-Sclerosis and Senile Atrophy and to the Distribution of Cortical Pigments." This was one of the first contributions from the analysis of the Danvers cases which later furnished the basis for so many observations.

It is not worth while to detail the many papers or articles of so prolific a writer farther than to point out work of special interest from some standpoint. In 1909 besides many other papers, Southard published three on bacillary dysentery, following the epidemic thereof at Davers in 1908.

In 1910 came the paper on "Senile Dementia" and his work on "Dementia Praecox" was started.

The year 1912 was again a very active year, with articles on the Psychopathic Hospital, of which he had become director, and on "Normal Looking Brains" from the Danvers material.

In 1914 a most suggestive paper on "Lesions of the Optic Thalamus" was published, and one on "The Topographical Distribution of Certain Lesions and Anomalies in Dementia Praecox."

These last years were more or less fully occupied with his work at the Psychopathic Hospital, where he gave clinics. After the details of management, arrangement, and teaching at the Psychopathic Hospital had been somewhat settled, Dr. Southard was at liberty to give attention to the great problems of neuropathology, and at this time he began to put into application a principle which he had long carefully thought out. This was the application of facts and classifications in one branch of knowledge to another apparently only distantly related. His first attempt at this seems to have been "On the Application of Grammatical Categories to the Analysis of Delusions." The idea that the principles, categories and classifications used in grammar could be applied with advantage in the analysis of mental states was an illuminating one. Dr. Southard studied grammars of various languages carefully and sought to obtain the principles on which the languages were built.

He was also a great student of the dictionary, —of words, of the meanings and derivations of words. This knowledge had a fascination for him and led him not only to use many words not in common or general use in his addresses and writings, but also aided him greatly when, as often happened in later years, he desired to coin new words to express new ideas, new classifications or new connotations.

Dr. Southard was very decided in his view that brain diseases, insanities and dementias, as well as others, should not be considered simply as disorders of the nervous system, but as disorders of the body as a whole. In every insanity the whole body should be examined and considered. It was partly in connection with this very strong feeling that he published in 1914-1915 his article "On the Nature and Importance of Kidney Lesions in Psychopathic Subjects."

He worked vigorously during these years, 1914-1916, and published several articles on conditions in dementia praecox and in manic depressive insanity: also in epilepsy, which he had for many years carefully studied.

In 1916 came his "Stratigraphical Analysis of Finer Cortex Changes in Certain Normal-Looking Brains in Dementia Praecox."

In 1917 he published ten papers.

In 1918, his very important paper on classification of disease for diagnosis, "Diagnosis per Exclusionem in Ordine" appeared; also "The Kingdom of Evil," which has been of great suggestiveness.

From 1916 onwards Dr. Southard's interests broadened and widened and his work extended in many different directions.

While still working at neuropathology in the narrower sense and studying the minute anatomy of the brain in dementia praecox and manic depressive insanity, epilepsy, etc., he was formulating ideas in relation to the conclusions to be drawn from the facts thus obtained. He was also working in many other directions.

I. In collaboration with Dr. Fernald, he undertook the publication of a work on the brains of the feeble-minded, and Part I of this was published in 1918. It may be fairly stated that this is the first scientific work carried out with all the newer and more exact means of research on the brains of the feeble-minded. (Part II of this work is almost finished and shortly to be published.)

II. He conducted investigations into the psychology and mental states of employees in various factories and establishments, showing how the knowledge of specialists in his line could be applied to great advantage in the choice and adaptation of workers, thus entering the subject of industrial hygiene and proving its close connection with the studies of neuropathology.

III. In his work at the Psychopathic Hospital he had instituted a psychiatric social service. In this he was much interested and in several papers he explained what this service was, of what value it was, and how it was differentiated from ordinary social service work and from psychiatric nursing.

In his later years, Dr. Southard felt that the time had arrived when it was advisable for him to place his knowledge before the professors and others in books rather than in more or less fugitive articles. He therefore devoted his attention to writing these, usually in collaboration with some one. Of these books, two have been published: Neurosyphilis, with Dr. H. C. Solomon in 1917, and Shell Shock, in 1919. He, however, had in mind other books at the time of his death, and some of these were far enough along to enable us to hope for their future publication.

Dr. Southard was a neuropathologist, and all his work and interests centred around neuropathology as he understood it. Neuropathology, to his mind, comprised much more than the mere cutting of sections and examining them microscopically or even deducing of great and fundamental facts from them. It embraced all or any research or work which bore on or related to the section of the nervous system to its environment in health or, more especially, in disease. All his other work was subsidiary to this central idea. But his other work in various lines was so excellent, so valuable, and so dominating that he has been variously claimed as a philosopher or psychologist, as a social worker *par excellence*, as an industrial health worker, and as a psychiatrist, and in each of these departments it has been said that he belonged to that department preëminently. In reality, all this work in these lines was secondary or collateral to his great aim: the knowledge of the formation and character of the nervous system in disease and its relations in the internal and reactions to the external world. The unusual amount of work which he accomplished and the energy and enthusiasm which he showed in working on these various problems which were all correlated in his mind is the excuse for the point of view of the separatists. He had written 150 articles. He had at the time of his death seven books in his mind, most of them in some degree of preparation.

I have not entered here into any description of his peculiar abilities. He had remarkable powers of deduction and in addition he had an extraordinary and most unusual capacity to perceive the salient fact and the conclusions to be drawn or which were suggested by any series of facts. A paper written by an assistant which seemed to be stupid, useless, and uninteresting, became under his hand both valuable and illuminating because the important facts were brought out and placed clearly before the reader.

Dr. Southard died in New York City of pneumonia, February 8, 1920. He left a wife, Dr. Mabel Austin Southard, to whom he was married in 1906, and three children, Austin, Ordway, and Anne.

Miscellany.

JULIUS STIMPSON CLARK.

The following resolutions were passed at a meeting of the Middlesex East District held March 17, 1920.

"Resolved that the members of the Middlesex East District desire to place on record their deep sense of loss in the death of their fellow member, Dr. Julius S. Clark of Melrose, recognizing in him those qualities which made him a valued member of the Society.

"Dr. Clark was a man of unusual attainments, a man of convictions and a writer of worth who, by his pen, exerted great influence in matters making for public welfare in the city where he lived. He was a faithful attendant and a ready speaker at our meetings, and sharing in the discussions he wielded always an influence in the deliberations of the Society.

Men of such pronounced individuality as the deceased possessed must always leave their impress which we members of the Middlesex East District hereby recognize."

A. E. SMALL,
Secretary, Middlesex East District.

REPORT UPON VACCINATION OF THE JOINT COMMITTEE ON LEGISLATION OF THE MASSACHUSETTS MEDICAL SOCIETY, AND THE MASSACHUSETTS HOMEOPATHIC MEDICAL SOCIETY.

Hearings on vaccination were held by the Legislative Committee on Public Health on February 25th and March 17th.

Nothing specially new was brought out at these hearings. In order to meet the assertions of the anti-vaccinationists, that many harmful results followed vaccination, your Joint Committee suggested a provision for prompt investigation and report by the local board of health to the State Department of Health, regarding any alleged harmful results of vaccination. The purpose of the provision is to stop the spread of false reports, and to show in what way bad results are to be avoided if any are found to occur.

The results of vaccination in the Philippine Islands (see editorial article in Boston Medical and Surgical Journal, March 4. 1920, page 246), and the results in Porto Rico were presented. It was pointed out to the Committee that the immunity conferred by vaccination is relative, that it can be compared to the immunity from fire of a building built of non-combustible material. It was also clearly stated that smallpox varies greatly in severity at different times and under different conditions, often beginning in a mild and perhaps at first unrecognized form until it encounters unvaccinated persons in the community.

Your committee asked for the enactment of House 233, making vaccination necessary for admission to private as well as to public schools. Dr. S. B. Woodward presented letters from the authorities of a very large majority of the private schools of the state favoring this plan. The legislation is favored first, that there may be no distinction between the pupils in the private and in the public schools, but second, and chiefly, in order to avoid the danger of any portion of the community growing up to become a source of danger in exactly the same way that combustible wooden buildings are a danger to a city.

Your Joint Committee asks the coöperation of all physicians in the State in making clear to the public and the Legislators the need of protecting everybody in order to prevent smallpox at any time gaining a foothold in an unvaccinated population.

James S. Stone, *Secretary*.

SOCIETY NOTICES.

The Massachusetts Therapeutic Massage Association.—The next meeting will be held at the Hotel Brunswick, Venetian room, at 7.45 p.m., on Thursday, April 15, 1920. Trustees meet at 7.30.

Dr. E. O. Otis will address the Society on "Consumption, its Causes, Cure, and Prevention." Dr. Herman W. Marshall will address the Society on "The Mechanical Arrangements of Lower Regions of Backs—and the Treatment of their Weaknesses."

Members of the medical profession are invited.

Douglas Graham, M.D., *President*.
Agnes J. Kerr, *Secretary*.

National Anaesthesia Research Committee.—The annual convention of the National Anaesthesia Research Committee will be held in Pittsburg the week of October 4, in conjunction with that of the Inter-State Anaesthetists' Association and the Pennsylvania Medical Society. Prizes aggregating $200 are offered by the Society for the best papers on original research in anaesthesia, such papers to be read at the annual meeting. This offer is open to all surgical, medical, and dental students, and practitioners in the United States.

Canadian Medical Association.—The Annual Convention of the Canadian Medical Association is to be held in Vancouver, B. C., June 22 to 25. At the same time the Canadian Public Health Association, the Canadian Association for the Prevention of Tuberculosis, the Canadian Committee on Mental Hygiene, the National Committee for Combating Venereal Diseases, and the British Columbia Hospital Association, will hold their conventions in Vancouver.

The meeting of the Canadian Medical Association is expected to be a particularly good one and many interesting papers have been promised from the profession, not only throughout Canada, but also from the United States, and the interest of this meeting will, of course, be greatly enhanced by the fact that the other associations are holding their conventions at the same time.

The trip to British Columbia may be made a very pleasant holiday, especially in view of the alternate routes that may be used on the return journey.

New England Dermatological Society.—The annual meeting will be held at the Boston City Hospital on Wednesday, April 14, 1920, at 3.30. Members of the medical profession are invited to attend.

E. Lawrence Oliver, *Secretary*.

ADDITIONAL NOTICE OF COMPLIMENTARY LUNCHEON TO GENERAL LEONARD WOOD AT HOTEL SOMERSET.

Owing to the haste with which the notices of the luncheon to General Wood were drawn up, the Committee inadvertantly gave the impression that only one ticket can be secured; if you desire to bring one or more friends with you to this luncheon, you can secure tickets by applying to Dr. Ayer, at 318 Shawmut Avenue, Boston, enclosing check and self-addressed, stamped envelope. Tickets to the luncheon are $4.00. Any physician may subscribe for as many seats as he may desire. Owing to change of location for holding luncheon, there will be only balcony seats for relatives and friends of the Class of 1883 of the Harvard Medical School.

For further particulars inquire of the Class Secretary, Dr. Silas Hibbard Ayer,
318 Shawmut Avenue, Boston, Mass
Telephone, Back Bay 6723.

Committee: Henry Jackson, M.D., *Pres.*; Silas Hibbard Ayer, M.D., *Sec'y*; Frederick L. Jack, M.D.; William F. Knowles, M.D.